



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,623	07/07/2003	Arnold I. Klayman	SRSLABS.053C3	7854

20995 7590 07/31/2006

KNOBBE MARTENS OLSON & BEAR LLP  
2040 MAIN STREET  
FOURTEENTH FLOOR  
IRVINE, CA 92614

EXAMINER
----------

LEE, PING

ART UNIT	PAPER NUMBER
----------	--------------

2615

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/614,623

Applicant(s)

KLAYMAN, ARNOLD I.

Examiner

Ping Lee

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/15/03, 1/27/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the phrase describing "mid-range attenuation of the difference information" is confusing. While one can understand the attenuation increasing occurring above the maximum gain frequency and increasing with a corresponding increase in difference-information frequency, there should not have any attenuation for frequency above the minimum gain frequency. As shown in Fig. 2 and the specific frequency ranges defined under "a maximum gain" in claim 1, there is an increase gain above the minimum gain frequency with the increase frequency until the mid-gain frequency.

Regarding claim 5, it is improper to claims "a first bass filter" and "a second bass filter" in the dependent claim while the same filters are being specified as "a first high-pass filter" and "a second high-pass filter" in claim 1.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 23-29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. While the preamble defines an apparatus, the

body of the claim specifies several method steps as in a method. Since 101 statute states that a patent could only be granted for a machine or a process, claims 23-29 claim non-statutory invention.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 9, 13, 15, 16 and 22-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Klayman (4,748,669).

Regarding claims 9, 13, 15, 16 and 23, Klayman discloses an apparatus for enhancing sound, the apparatus comprising:

a first high-pass filter (12) which receives a first input, the first high-pass filter configured to filter a set of lower frequencies in the first input relative to other frequencies in the first input;

a second high-pass filter (14) which receives a second input, the second high-pass filter configured to filter a set of lower frequencies in the second input relative to other frequencies in the second input;

a difference circuit (11) in communication with the first and second high-pass filters (12,14), the difference circuit configured to identify the difference information in the filtered first and second inputs;

an equalizer (18, 19) in communication with the difference circuit, the equalizer configured to spectrally shape the difference information; and

a summing circuit (25) in communication with the equalizer and the first input and the second input, the summing circuit configured to combine the spectrally shaped difference information (from 23) with the set of lower frequencies (from Lin) in the first input to generate a first output, the summing circuit further configured to combine the spectrally shaped difference information (from 23) with the set of lower frequencies in the second input (from Rin) to generate a second output (see equations 1 and 2).

Regarding claims 13, 15, 20 and 22, Klayman shows the level adjust circuit (23).

Regarding claims 24-29, Klayman shows the boosting and attenuating in Fig. 5A.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-8, 14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klayman.

Regarding claims 1 and 4-8, Klayman fails to explicitly show bass attenuation of the difference information occurring below the maximum gain frequency. However, Klayman suggests and teaches that the sum information below 200 Hz should be attenuated to **avoid overly emphasis bass**. Klayman further suggests and teaches

Art Unit: 2615

that there is very little difference information in this range (col. 19, lines 46-51). Thus, it would have been obvious to one of ordinary skill in the art to modify Klayman by providing bass attenuation for the frequency below the maximum gain frequency in order to protect the speaker from overdriven in the ultra low frequency.

Regarding claims 2, 14 and 21, Klayman fails to show a digital signal processor. Klayman teaches how to and how much to attenuate and boost the difference signal with detail circuitry. One skilled in the art would be able to implement the filters, the mixer and the equalizers using a DSP by programming the DSP to perform the function as taught in Klayman. For a digital input signals, such as from CD, DSP would provide a great advantage since the digital signal could be directly applied to the DSP without converting it to analog signal as required in analog circuitry as shown in Klayman.

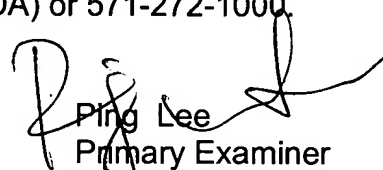
Regarding claim 3, Klayman teaches 6 dB per octave roll off for the several low and high pass filters. It would have been obvious to one of ordinary skill in the art to design filters for attenuating bass and mid-range with 6 dB per octave roll off in order to provide proper filter cutoff response.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522. The examiner can normally be reached on Monday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2615

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Ping Lee  
Primary Examiner  
Art Unit 2615

pwl